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| S9 | 4 | JP-03042337-\$ did. EP-1333410-\$ did. WO-200208023-\$ did. | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2004/11/16 16:30 |
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| S24 | 39 | (face or facial) with (ident\$9 or recogni\$6 or verif\$7 or biometric) same (ocular or eye or gaze or visual) near (profile or stor\$3 or template or model or calibrat\$3) | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2004/11/18 09:59 |
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Relevance scale 

1 Designing interfaces for an overlooked user group: considering the visual profiles of partially sighted users 

Julie A. Jacko, Andrew Sears

January 1998 Proceedings of the third international ACM conference on Assistive technologiesFull text available:  [txt\(15.00 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: enabling technologies, human-computer interaction, partial vision, visually impaired

2 Incorporating clinical diagnoses in the prediction of performance on computer-based tasks for low vision users 

Julie A. Jacko

June 1999 ACM SIGCAPH Computers and the Physically Handicapped, Issue 64Full text available:  [pdf\(223.62 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Researchers focusing on investigations of human-computer interaction are developing a heightened awareness of the challenges that impede universal access to information technologies. Furthermore, researchers are acknowledging that low vision computer users represent a sizeable portion of the computing community for whom information technologies must be made available if we are to claim successful universal access. The low vision computing community represents a vast array of visual capabilities a ...

3 Visual profiles: a critical component of universal access 

Julie A. Jacko, Max A. Dixon, Robert H. Rosa, Ingrid U. Scott, Charles J. Pappas

May 1999 Proceedings of the SIGCHI conference on Human factors in computing systems: the CHI is the limitFull text available:  [psf\(961.39 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This research focuses on characterizing visually impaired computer users performance on graphical user interfaces by linking clinical assessments of low vision with visual icon identification. This was accomplished by evaluating user performance on basic identification and selection tasks within a graphical user interface, comparing partially sighted user performance with fully sighted user performance, and linking task performance to specific

profiles of visual impairment. Results in ...

Keywords: disabilities, low vision, universal access, visual icons

4 Job and health implications of VDT use: initial results of the Wisconsin-NIOSH study
Steven L. Sauter, Mark S. Gottlieb, Karen C. Jones, Vernon N. Dodson, Kathryn M. Rohrer
April 1983 **Communications of the ACM**, Volume 26 Issue 4

Full text available:  pdf(1.09 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citing](#), [index terms](#)

Magnitudes and correlates of stress were investigated among 248 office workplace VDT users and 85 nonuser counterparts using field survey and objective physical measurement techniques. Other than a tenuous indication of increased eyestrain and reduced psychological disturbances among users, the two groups were largely undifferentiated on job-attitudinal, affective, and somatic manifestations of stress. However, aspects of working conditions were judged less favorably by VDT users. S ...

Keywords: ergonomics, health, human factors, occupational stress, office automation, video display terminals (VDTs, CRTs)

5 A systems analysis of stress-strain in VDT operation

Steven L. Sauter, Mark S. Gottlieb, Karen C. Jones

March 1982 **Proceedings of the 1982 conference on Human factors in computing systems**

Full text available:  pdf(442.09 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The last half decade has witnessed a rapidly accelerating trend toward the application of video display terminal (VDT) technology for information management in the office workplace, and a growing body of scientific and anecdotal data on the implications of VDT use for the well-being of office workers [2,4,6-8,11,15,16]. A striking aspect of the research on this subject is the degree of conflict among reports regarding the type, magnitude, and causes of adverse changes in the health, comfort ...

6 Strategic design for users with diabetic retinopathy: factors influencing performance in a menu-selection task

Paula J. Edwards, Leon Barnard, V. Kathlene Emery, Ji Soo Yi, Kevin P. Moloney, Thitima Kongnakorn, Julie A. Jacko, François Sainfort, Pamela R. Oliver, Joseph Pizzimenti, Annette Bade, Greg Fecho, Josephine Shallo-Hoffmann

September 2004 **ACM SIGACCESS Accessibility and Computing , Proceedings of the ACM SIGACCESS conference on Computers and accessibility**, Issue 77-78

Full text available:  pdf(544.05 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper examines factors that affect performance of a basic menu selection task by users who are visually healthy and users with Diabetic Retinopathy (DR) in order to inform better interface design. Interface characteristics such as multimodal feedback, Windows® accessibility settings, and menu item location were investigated. Analyses of Variance (ANOVA) were employed to examine the effects of interface features on task performance. Linear regression was used to further examine and m ...

Keywords: auditory feedback, diabetic retinopathy, haptic feedback, menus, multimodal feedback, visual impairment, windows accessibility settings

7

Isolating the effects of visual impairment: exploring the effect of AMD on the utility of

multimodal feedback

Julie A. Jacko, Leon Barnard, Thitima Kongnakorn, Kevin P. Moloney, Paula J. Edwards, V. Kathlene Emery, Francois Sainfort

April 2004 **Proceedings of the 2004 conference on Human factors in computing systems**

Full text available:  [pdf \(384.89 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This study examines the effects of multimodal feedback on the performance of older adults with an ocular disease, Age-Related Macular Degeneration (AMD), when completing a simple computer-based task. Visually healthy older users ($n = 6$) and older users with AMD ($n = 6$) performed a series of drag-and-drop tasks that incorporated a variety of different feedback modalities. The user groups were equivalent with respect to traditional visual function metrics and measured subject cofactors, aside from ...

Keywords: age-related macular degeneration (AMD), multimodal feedback, multimodality, universal access, visual feedback, visual impairment, visually impaired users

8 **Accessibility interfaces: Older adults and visual impairment: what do exposure times and accuracy tell us about performance gains associated with multimodal feedback?** 
Julie A. Jacko, Ingrid U. Scott, Francois Sainfort, Leon Barnard, Paula J. Edwards, V. Kathlene Emery, Thitima Kongnakorn, Kevin P. Moloney, Brynley S. Zorich

April 2003 **Proceedings of the conference on Human factors in computing systems**

Full text available:  [pdf \(420.67 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This study examines the effects of multimodal feedback on the performance of older adults with different visual abilities. Older adults possessing normal vision ($n=29$) and those who have been diagnosed with Age-Related Macular Degeneration ($n=30$) performed a series of drag-and-drop tasks under varying forms of feedback. User performance was assessed with measures of feedback exposure times and accuracy. Results indicated that for some cases, non-visual (e.g. auditory or haptic) and multimodal (b ...

Keywords: age related macular degeneration (AMD), multimodal feedback, multimodality, visual feedback, visually impaired users

9 **Le rôle fondamental du système d'interaction dans une installation de réalité virtuelle** 
Alain Grumbach

November 2002 **Proceedings of the 14th French-speaking conference on Human-computer interaction (Conférence Francophone sur l'Interaction Homme-Machine)**

Full text available:  [pdf \(90.44 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The aim of this paper is to assess the basic role of the interaction system within a virtual reality application. Starting with an introduction to our sense of virtual reality, we put the stress on the interaction between the human operator and the virtual world. After an overview of different kinds of interaction which shows the diversity and the richness of this function, our approach consists of considering the interaction as a genuine information processing system which communicates and coop ...

Keywords: augmented reality, information processing, interaction, virtual reality

10 **Toward achieving universal usability for older adults through multimodal feedback** 
V. Kathlene Emery, Paula J. Edwards, Julie A. Jacko, Kevin P. Moloney, Leon Barnard, Thitima Kongnakorn, Francois Sainfort, Ingrid U. Scott

June 2002 **ACM SIGCAPH Computers and the Physically Handicapped , Proceedings of the 2003 conference on Universal usability**, Issue 73-74

Full text available:  pdf(279.62 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This experiment examines the effect of combinations of feedback (auditory, haptic, and/or visual) on the performance of older adults completing a drag-and-drop computer task. Participants completed a series of drag-and-drop tasks under each of seven feedback conditions (3 unimodal, 3 bimodal, 1 trimodal). Performance was assessed using measures of efficiency and accuracy. For analyses of results, participants were grouped based on their level of computer experience. All users performed well unde ...

Keywords: auditory, computer use, experience, haptic, multimodal, older adults, visual

11 [Medical informatics: a personal view of sowing the seeds](#)



R. S. Ledley

December 1987 **Proceedings of ACM conference on History of medical informatics**

Full text available:  pdf(1.37 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

12 [APL Based medical image analysis](#)



Tilman P. Otto

June 2000 **ACM SIGAPL APL Quote Quad , Proceedings of the international conference on APL-Berlin-2000 conference**, Volume 30 Issue 4

Full text available:  pdf(693.30 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Ophthalmology (eye care) is an important medical discipline. Since 1961 the representation of the ocular vascular system using fluorescence dyes has been one of the most important methods used in the diagnosis of diseases of the human eye. The recently introduced laser scanning systems allows fast and continuous imaging of the complete inflow of dye into the vascular system. With the aid of APL as a well-suited image analysis tool it is now possible to analyze these image sequences to extract di ...

13 [Eye movement analysis & visual search: 3D eye movement analysis for VR visual inspection training](#)



Andrew T. Duchowski, Eric Medlin, Nathan Cournia, Anand Gramopadhye, Brian Melloy, Santosh Nair

March 2002 **Proceedings of the symposium on Eye tracking research & applications**

Full text available:  pdf(1.05 MB) Additional Information: [full citation](#), [abstract](#), [references](#)

This paper presents an improved 3D eye movement analysis algorithm for binocular eye tracking within Virtual Reality for visual inspection training. The user's gaze direction, head position and orientation are tracked to allow recording of the user's fixations within the environment. The paper summarizes methods for (1) integrating the eye tracker into a Virtual Reality framework, (2) calculating the user's 3D gaze vector, and (3) calibrating the software to estimate the user's inter-pupillary d ...

14 [Towards demystification of direct manipulation: cognitive modeling charts the gulf of execution](#)



David Kieras, David Meyer, James Ballas

March 2001 **Proceedings of the SIGCHI conference on Human factors in computing systems**

Full text available:  pdf(147.38 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Direct manipulation involves a large number of interacting psychological mechanisms that

make the performance of a given interface hard to predict on intuitive or informal grounds. This paper applies cognitive modeling to explain the subtle effects produced by using a keypad versus a touchscreen in a performance-critical laboratory task.

Keywords: cognitive modeling, direct manipulation

15 [Health care information systems: a personal historic review](#) 

M. F. Collen

December 1987 **Proceedings of ACM conference on History of medical informatics**

Full text available:  [pdf\(1.14 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

16 [Disney's Aladdin: first steps toward storytelling in virtual reality](#) 

Randy Pausch, Jon Snoddy, Robert Taylor, Scott Watson, Eric Haseltine

August 1996 **Proceedings of the 23rd annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(195.32 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

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Relevance scale **1 Oral I: The eyes have it**

Terry Riopka, Terrance Boult

November 2003 **Proceedings of the 2003 ACM SIGMM workshop on Biometrics methods and applications**Full text available:  [pdf\(529.11 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper evaluates the impact of eye localization on face recognition accuracy. To investigate its importance, we present an eye perturbation sensitivity analysis, as well as empirical evidence that reinforces the notion that eye localization plays a key role in the accuracy of face recognition systems. In particular, correct measurement of eye separation is shown to be more important than correct eye location, highlighting the critical role of eye separation in the scaling and normalization o ...

Keywords: EBGM, FaceIt, PCA, biometrics, eye localization, face recognition

2 Face recognition: A literature survey

W. Zhao, R. Chellappa, P. J. Phillips, A. Rosenfeld

December 2003 **ACM Computing Surveys (CSUR)**, Volume 35 Issue 4Full text available:  [pdf\(4.28 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

As one of the most successful applications of image analysis and understanding, face recognition has recently received significant attention, especially during the past several years. At least two reasons account for this trend: the first is the wide range of commercial and law enforcement applications, and the second is the availability of feasible technologies after 30 years of research. Even though current machine recognition systems have reached a certain level of maturity, their success is ...

Keywords: Face recognition, person identification

3 Oral I: 3D face recognition based on high-resolution 3D face modeling from frontal and profile views

Lijun Yin, Matt T. Yourst

November 2003 **Proceedings of the 2003 ACM SIGMM workshop on Biometrics methods and applications**Full text available:  [pdf\(528.92 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper presents a novel face recognition system which considers information from both frontal and profile view images and videos. In the system, we recover facial texture details by increasing the input image resolution, construct an accurate 3D face model from two views of a face, and explore both 3D shape and texture informations for an optimal match and identification based on a 3D face model database. Unlike many existing 3D face recognition systems where the 3D model is taken as a bridge ...

Keywords: face identification, face modeling, super-resolution

4 Reception and posters: [Model-based talking face synthesis for anthropomorphic spoken dialog agent system](#) 

Tatsuo Yotsukura, Shigeo Morishima, Satoshi Nakamura

November 2003 **Proceedings of the eleventh ACM international conference on Multimedia**

Full text available:  [pdf\(1.34 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Towards natural human-machine communication, interface technologies by way of speech and image information have been intensively developed. An anthropomorphic dialog agent is an ideal system, which integrates spoken dialog and natural facial expressions. This paper reports on our project aiming to create a general-purpose toolkit for building an easily customizable anthropomorphic agent. There have been almost no tools so far such as intuitive, easy to understand, fully interactive, and open sou ...

Keywords: anthropomorphic dialog agent, face image synthesis, facial animation, lip synchronization

5 Human facial illustrations: [Creation and psychophysical evaluation](#) 

Bruce Gooch, Erik Reinhard, Amy Gooch

January 2004 **ACM Transactions on Graphics (TOG)**, Volume 23 Issue 1

Full text available:  [pdf\(215.82 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present a method for creating black-and-white illustrations from photographs of human faces. In addition an interactive technique is demonstrated for deforming these black-and-white facial illustrations to create caricatures which highlight and exaggerate representative facial features. We evaluate the effectiveness of the resulting images through psychophysical studies to assess accuracy and speed in both recognition and learning tasks. These studies show that the facial illustrations and ca ...

Keywords: Caricatures, Super-portraits, Validation

6 Systems & applications II: [Real-time eye detection and tracking under various light conditions](#) 

Zhiwei Zhu, Kikuo Fujimura, Qiang Ji

March 2002 **Proceedings of the symposium on Eye tracking research & applications**

Full text available:  [pdf\(602.92 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Non-intrusive methods based on active remote IR illumination for eye tracking are important for many applications of vision-based man-machine interaction. One problem that has plagued those methods is their sensitivity to lighting condition change. This tends to significantly limit their scope of application. In this paper, we present a new real-time eye detection and tracking methodology that works under variable and realistic lighting conditions. Based on combining the bright-pupil effect resu ...

Keywords: Eye Tracking, Kalman Filter, Mean Shift, Support Vector Machine

7 [A feature recognition algorithm for multiply connected depressions and protrusions in 2 1/2 D objects](#) 

J. Corney, D. E. R. Clark

May 1991 **Proceedings of the first ACM symposium on Solid modeling foundations and CAD/CAM applications**

Full text available:  pdf(1.04 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

8 [Omni-face detection for video/image content description](#) 

Gang Wei, Ishwar K. Sethi

November 2000 **Proceedings of the 2000 ACM workshops on Multimedia**

Full text available:  pdf(1.33 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

An omni-face detection scheme for image/video content description is proposed in this paper. It provides the ability to extract high-level features in terms of human activities rather than low-level features like color, texture and shape. The system relies on an omni-face detection system capable of locating human faces over a broad range of views in color images or videos with complex scenes. It uses the presence of skin-tone pixels coupled with shape, edge pattern and face-specific features ...

Keywords: content-based retrieval, face detection, image annotation, side-view faces, skin-tone filtering

9 [Texture mapping 3D models of real-world scenes](#) 

Frederick M. Weinhaus, Venkat Devarajan

December 1997 **ACM Computing Surveys (CSUR)**, Volume 29 Issue 4

Full text available:  pdf(1.98 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

Texture mapping has become a popular tool in the computer graphics industry in the last few years because it is an easy way to achieve a high degree of realism in computer-generated imagery with very little effort. Over the last decade, texture-mapping techniques have advanced to the point where it is possible to generate real-time perspective simulations of real-world areas by texture mapping every object surface with texture from photographic images of these real-world areas. The technique ...

Keywords: anti-aliasing, height field, homogeneous coordinates, image perspective transformation, image warping, multiresolution data, perspective projection, polygons, ray tracing, real-time scene generation, rectification, registration, texture mapping, visual simulators, voxels

10 [Biometric identification](#) 

Anil Jain, Lin Hong, Sharath Pankanti

February 2000 **Communications of the ACM**, Volume 43 Issue 2

Full text available:  pdf(677.32 KB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

 html(37.23 KB)

11 Heads, faces, hair: FacEMOTE: qualitative parametric modifiers for facial animations

Meeran Byun, Norman I. Badler

July 2002 Proceedings of the 2002 ACM SIGGRAPH/Eurographics symposium on Computer animationFull text available:  [pdf \(405.67 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

We propose a control mechanism for facial expressions by applying a few carefully chosen parametric modifications to pre-existing expression data streams. This approach applies to any facial animation resource expressed in the general MPEG-4 form, whether taken from a library of preset facial expressions, captured from live performance, or entirely manually created. The MPEG-4 Facial Animation Parameters (FAPs) represent a facial expression as a set of parameterized muscle actions, given as inte ...

Keywords: MPEG, animation systems, facial animation**12 Animating facial expressions.**

Stephen M. Platt, Norman I. Badler

August 1981 ACM SIGGRAPH Computer Graphics , Proceedings of the 8th annual conference on Computer graphics and interactive techniques, Volume 15 Issue 3Full text available:  [pdf \(705.36 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Recognition and simulation of actions performable on rigidly-jointed actors such as human bodies have been the subject of our research for some time. One part of an ongoing effort towards a total human movement simulator is to develop a system to perform the actions of American Sign Language (ASL). However, one of the "channels" of ASL communication, the face, presents problems which are not well handled by a rigid model. An integrated system for an internal represent ...

13 Computational Approaches to Image Understanding

Michael Brady

January 1982 ACM Computing Surveys (CSUR), Volume 14 Issue 1Full text available:  [pdf \(10.04 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**14 A multimodal learning interface for grounding spoken language in sensory perceptions**

Chen Yu, Dana H. Ballard

July 2004 ACM Transactions on Applied Perception (TAP), Volume 1 Issue 1Full text available:  [pdf \(1.73 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present a multimodal interface that learns words from natural interactions with users. In light of studies of human language development, the learning system is trained in an unsupervised mode in which users perform everyday tasks while providing natural language descriptions of their behaviors. The system collects acoustic signals in concert with user-centric multisensory information from nonspeech modalities, such as user's perspective video, gaze positions, head directions, and hand moveme ...

Keywords: Multimodal learning, cognitive modeling, multimodal interaction**15****Attention and integration: Providing the basis for human-robot-interaction: a multi-modal attention system for a mobile robot**

Sebastian Lang, Marcus Kleinehagenbrock, Sascha Hohenner, Jannik Fritsch, Gernot A. Fink, Gerhard Sagerer

November 2003 **Proceedings of the 5th international conference on Multimodal interfaces**

Full text available:  [pdf\(169.27 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In order to enable the widespread use of robots in home and office environments, systems with natural interaction capabilities have to be developed. A prerequisite for natural interaction is the robot's ability to automatically recognize when and how long a person's attention is directed towards it for communication. As in open environments several persons can be present simultaneously, the detection of the communication partner is of particular importance. In this paper we present an attention ...

Keywords: attention, human-robot-interaction, multi-modal person tracking

16 Assurance in life/nation critical endeavors: Biometrics or... biohazards? 

John Michael Williams

September 2002 **Proceedings of the 2002 workshop on New security paradigms**

Full text available:  [pdf\(1.17 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

IPSE DIXIT Biometrics as an array of deployable technologies presumes an elaborate infrastructure, including underlying science that justifies its claims of detection, classification, identification and authentication of individual human identities; particularly of those who are runaways, illegal immigrants, fugitives, criminals, terrorists, and so on. This will now too often be literally a matter of life and death, both for the public and the individuals identified. The "New Security Paradigm" em ...

17 Multimodal human discourse: gesture and speech 

Francis Quek, David McNeill, Robert Bryll, Susan Duncan, Xin-Feng Ma, Cemil Kirbas, Karl E. McCullough, Rashid Ansari

September 2002 **ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 9 Issue 3

Full text available:  [pdf\(3.01 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Gesture and speech combine to form a rich basis for human conversational interaction. To exploit these modalities in HCI, we need to understand the interplay between them and the way in which they support communication. We propose a framework for the gesture research done to date, and present our work on the cross-modal cues for discourse segmentation in free-form gesticulation accompanying speech in natural conversation as a new paradigm for such multimodal interaction. The basis for this integ ...

Keywords: Multimodal interaction, conversational interaction, discourse, gesture, gesture analysis, human interaction models, speech

18 Video abstracting 

Rainer Lienhart, Silvia Pfeiffer, Wolfgang Effelsberg

December 1997 **Communications of the ACM**, Volume 40 Issue 12

Full text available:  [pdf\(2.61 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

19 A feature definition language for bridging solids and features 

Timo Laakko, Martti Mäntylä

June 1993 **Proceedings on the second ACM symposium on Solid modeling and**